Extended GL

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1 Limit to Generative Lexicon

[3] has manually classified the 3030 examples containing the NP1-no NP2 “NP1-GEN NP2” construction in Japanese in accordance with the semantic relations between the two noun phrases. The examples were sorted out of the core data of the Yahoo! Chiebukuro portion of [1] by using ChaKi.NET 1.2.

Crucially, I argued that the Generative Lexicon Theory [5] needed to be expanded to include not only inherent properties but also referential descriptions, because 8% of the data involved the modification of the temporary elements, such as location, time, and manner of the referent of NP2 (e.g., Operaza-no Kaijin “Phantom of the Opera”, that is, Phantom in the Opera) [4].

The survey indicated that 29% of all instances are examples that NP1 selectively binds, or modifies the inherent property, that is, the qualia structure of the lexical meaning of the NP2 (e.g., Fuji-no rendora “a soap opera by Fuji TV”, i.e., a soap opera created by Fuji TV) [5]. Regarding the 25% of all instances, NP2 is a relational noun in a broader sense, and NP1 represents their arguments. For example, in mune-no mae “in front of the chest,” mae is considered to be a two-place holder noun which takes mune as its argument.

Table 1: Figure 1: Distribution of Semantic Patterns of NP1-no NP2 Construction

<table>
<thead>
<tr>
<th>Construction</th>
<th>Count</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>selective binding of qualia in NP2</td>
<td>886</td>
<td>0.292409241</td>
</tr>
<tr>
<td>NP2 is a relational noun</td>
<td>777</td>
<td>0.256435644</td>
</tr>
<tr>
<td>NP2 is a deverbal noun</td>
<td>443</td>
<td>0.146864686</td>
</tr>
<tr>
<td>referential module modification of NP2</td>
<td>244</td>
<td>0.080528053</td>
</tr>
<tr>
<td>NP2 is a quantifiers</td>
<td>132</td>
<td>0.045814853</td>
</tr>
<tr>
<td>possession</td>
<td>45</td>
<td>0.015016501</td>
</tr>
<tr>
<td>demonstratives</td>
<td>22</td>
<td>0.007590759</td>
</tr>
<tr>
<td>NP2 is a deverbal noun</td>
<td>24</td>
<td>0.007590759</td>
</tr>
<tr>
<td>NP2 is theme of deverbal NP2</td>
<td>23</td>
<td>0.007306226</td>
</tr>
<tr>
<td>adverb</td>
<td>6</td>
<td>0.000198019</td>
</tr>
<tr>
<td>selective binding of qualia in NP1</td>
<td>1</td>
<td>0.000030003</td>
</tr>
<tr>
<td>total</td>
<td>3030</td>
<td>1</td>
</tr>
</tbody>
</table>

2 Extended GL

Even though Pustejovsky’s four qualia express inherent properties of referents, I propose supplementing lexical semantics with information about the referents. Besides type, argument, event, and qualia structures in GL [cf. 2, 79], the referential module (EXTENSION(EXT)) has subcategories of TIME, LOC, and MANNER roles. For example, Operaza-no “of The Opera” in operaza-no kaijin “the Phantom of the Opera” and mayonaka-no “midnight” in mayonaka-no kaijin “the midnight beach” modify extensional modules of the Phantom and the beach. In baiku no kare “those on scooters,” scooter-riding is one of the temporary properties of the referents, so that it is a MANNER role modification.

(1) Original GL Template

\[
\begin{align*}
\alpha & \quad \text{TYPESTR} = \{\text{ARG1} = \text{THE TYPE OF } \alpha\} \\
\text{ARGSTR} = \{D-\text{ARG1} = \text{OTHER ARGUMENTS IN THE QUALIA}\} \\
\text{EVENTSTR} = \{E1 = \text{EVENTS IN THE QUALIA}\} \\
\text{QUALIA} = \{\text{FORMAL} = \text{ISA-RELATION} \\
\text{CONST} = \text{PARTS OF } \alpha \text{, TELEIC} = \text{PURPOSE OF } \alpha \\
\text{AGENT} = \text{HOW } \alpha \text{ IS BROUGHT ABOUT}\} \\
\end{align*}
\]

[2, 79]

(2) Template for Extended GL

\[
\begin{align*}
\alpha & \quad \text{TYPESTR} = \{\text{ARG1} = \text{THE TYPE OF } \alpha\} \\
\text{ARGSTR} = \{D-\text{ARG1} = \text{OTHER ARGUMENTS IN THE QUALIA}\} \\
\text{EVENTSTR} = \{E1 = \text{EVENTS IN THE QUALIA}\} \\
\text{QUALIA} = \{\text{LOC} = \text{IN } \text{ADJ} \text{ ADJ}\} \\
\text{TIME} = \text{AT } \text{ADJ} \text{ ADJ}\} \\
\text{MANNER} = \text{WITH } \text{ADJ} \text{ ADJ}\} \\
\end{align*}
\]

As a result, selective binding not only applies to qualia structure but also to a referential module, which enables the computation of the meaning of the NP1-no NP2 construction. For example, Operaza-no “of the Opera” specifies the location of the Phantom as the Opera, mayonaka-no “midnight” modifies time and baiku no “on scooters” fills the manner role.
(3) a. \([\text{The\_Phantom\_of\_the\_Opera}] = \lambda x[\text{phantom}(x) \& [\text{EXT} = \exists e[\text{be-phantom}(e) \& \text{theme}(e) = x \& \text{location}(e) = \text{The\_Opera}]]]

b. \([\text{midnight\_beach}] = \lambda x[\text{beach}(x) \& [\text{EXT} = \exists e[\text{be-beach}(e) \& \text{theme}(e) = x \& \text{time}(e) = \text{midnight}]]]

c. \([\text{those\_on\_scooters}] \equiv \lambda x[g(1) = x \& [\text{EXT} = \exists e[\text{born}(e) \& \text{manner}(e) = \text{with-scooter}]]]

3 EGL Database

I have made a small database of fifty lexical items taken from [1] in the format of the Extended GL.

References


